

PHOTO QUIZ

Confusing Hypoxia in a 21-Year-Old Intubated Multiple Trauma Patient

Parvin Kashani¹, Sahar Mirbaha^{2*}

1. Department of Emergency Medicine, Lohmane Hakim Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Emergency Medicine, Shohadaye Tajrish Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

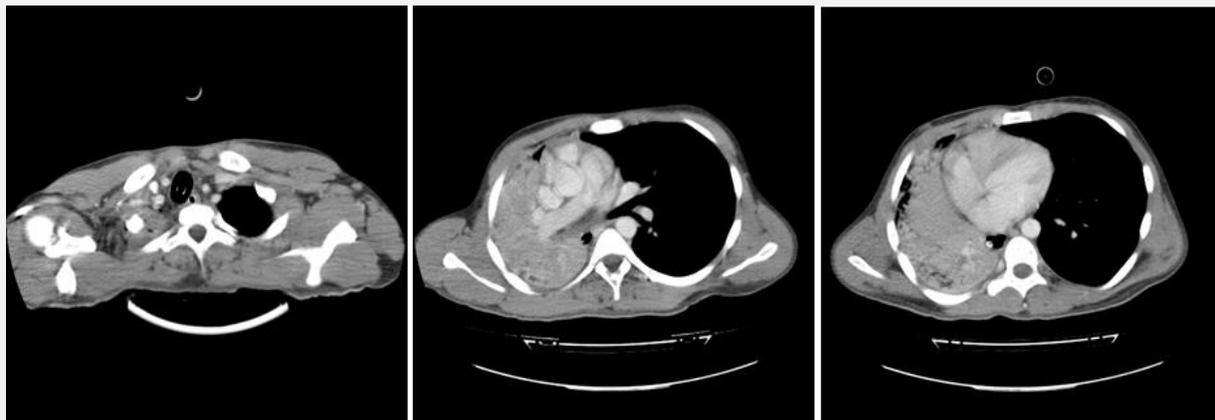


Figure 1: Spiral axial chest computed tomography scan [↑](#)

Cite this article as: Kashani P, Mirbaha S. Confusing hypoxia in a 21-year-old intubated multiple trauma patient. *Emergency*. 2014;2 (2): 104-5.

Case presentation:

A 21-year-old man was brought to the emergency department due to multiple trauma (MT) caused by a motor-car accident (MCA). On arrival, the patient was intubated by prehospital emergency medical services (EMS) and had a Glasgow coma scale (GCS) score of 6 on 10 (Due to intubation, verbal score was omitted). Physical examination revealed blood pressure of 150/70 mmHg, oxygen saturation (O₂sat) of 60%, and pulse rate of 110/min. Examination of the tracheal tube site revealed incorrect esophageal placement. The patient was intubated again and his O₂sat improved and reached approximately 96%. His pupils were reactive and of the same size. The Doll's eye was normal, and plantar reflex was neuter in both sides. Neither

expanding hematoma nor emphysema was observed in his neck. Laceration was noted on his left ear, but otorrhagia and tympanic perforation were not found. The lung sounds were normal in both sides. Extended focused abdominal sonography for trauma (e-FAST) examination revealed the absence of free fluid in the abdomen and pericardial space. No deformity of limbs was noted and the distal pulses were palpable. The patient's O₂sat decreased during his admission to the emergency department, and further examination indicated obvious decreased sound in his right lung that could not be reversed by needle thoracostomy. On reviewing his previous chest computed tomography, an obvious questionable pathology was detected in his right side [Figure 1](#).

*Corresponding Author: Sahar Mirbaha; Department of Emergency Medicine, Shohadaye Tajrish Hospital, Tajrish Square, Tehran, Iran. Mobile phone: +989121549405; phone/fax: +982122721155. Email: mirsa317@yahoo.com

Received: 1 April 2014; Accepted: 9 April 2014



What is your diagnosis?

Diagnosis:

Massive blood clot in right main bronchus

Case fate:

There was a transaction in the right bronchus path, which required pushing of the tracheal tube to the right bronchus and passing of the suction catheter through it. A big clot was evicted and the patient's O₂sat improved dramatically.

Discussion:

The occurrence of respiratory distress is serious. The mortality rate of traumatic patients presenting to the emergency department with respiratory distress is approximately 50% (1). The causes of hypoxia occurring soon after intubation can be found in the acronym "DOPES," which denotes displacement of the endotracheal tube (ETT); obstruction of ETT; pneumothorax, pulmonary embolism, and pulmonary edema; equipment and ventilator problems; and, finally, stacked breaths (2-4). The most important issues that should be checked when this problem is detected are as follows: first, the severity of the problem should be determined (do you need to start immediate resuscitation?) and then MASH, i.e., movement of the chest during ventilation, arterial blood gas (ABG) sample, the skin color of the patient, and hemodynamic stability, should be assessed (2, 5, 6). The ventilator must be disconnected and high-flow 100% oxygen should be administered using a bag valve. After ruling out tension pneumothorax, the other possible causes should be considered (2, 4). A responsible physician should determine whether the problem is related to ETT or the patient. To ensure the right place of ETT, the end tidal CO₂ (ETCO₂) should be checked. In addition, to ensure that ETT is not obstructed, a suction catheter and/or a bougie can be passed through it. The placement of ETT must be visually checked, preferably by bronchoscopy, or alternatively, by laryngoscopy, from the top end (although this is far from 100% reliable). If hypoxemia is not critical, particularly, if endobronchial intubation is suspected, then chest radiography should be considered to check

the ETT position (5, 6).

Airway obstruction may be related to different factors, including kinking or bending of ETT; tube obstruction with foreign bodies, mucus, blood, etc.; and extrinsic compression (3, 6). Severe mucus plugging may redound to worsen gas exchange, increasing inspiratory pressure and causing difficulty in breathing, and if not treated quickly, it may cause infectious complications and mortality (4, 7). Furthermore, establishing good hydration, damping of inspired gases, chest physiotherapy, and postural drainage plus manual lung hyperinflation are considered as traditional and safe methods for the prevention and treatment of atelectasis in most of the patients (5, 7).

Acknowledgment:

We would like to express our special thanks from emergency department staffs.

Conflict of interest:

There was no conflict of interest.

Author's contribution:

All authors contributed in drafting /revising the manuscript, study concept or design, and interpretation of data.

References:

1. Alimohammadi H, Baratloo A, Abdalvand A, Rouhipour A, Safari S. Effects of Pain Relief on Arterial Blood O₂ Saturation. *Trauma mon.* 2014;19(1):e14034.
2. Stone RH, Bricknell SS. Experience with a new device for clearing mucus from the endotracheal tube. *Respir Care.* 2011;56(4):520-2.
3. Johnson KM, Lehman RE. Acute Management of the Obstructed Endotracheal Tube. *Respir Care.* 2012;57(8):1342-4.
4. Hofstetter C, Scheller B, Hoegl S, Mack MG, Zwissler B, Byhahn C. Cuff overinflation and endotracheal tube obstruction: case report and experimental study. *Scand J Trauma.* 2010;18:18.
5. Hagberg C, Georgi R, Krier C. Complications of managing the airway. *Best Pract Res Clin Anaesthesiol.* 2005;19(4):641-59.
6. Varga S, Shupp JW, Maher D, Tuznik I, Sava JA. Trauma Airway Management: Transition from Anesthesia to Emergency Medicine. *J Emerg Med.* 2013;44(6):1190-5.
7. Suljević I, Beharić S, Šurković I. Complications in Preserving the Airway in Intensive Care Unit Patients. *Acta Clin Croat.* 2012;51(3.):519-24.

